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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/666,481	09/20/2000	Masayuki Morita	0250-0821	7125
22204	7590	09/30/2002		
NIXON PEABODY, LLP 8180 GREENSBORO DRIVE SUITE 800 MCLEAN, VA 22102			EXAMINER	
			STOCKTON, LAURA LYNNE	
			ART UNIT	PAPER NUMBER
			1626	
DATE MAILED: 09/30/2002 15				

Please find below and/or attached an Office communication concerning this application or proceeding.



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EXAMINER
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ART UNIT	PAPER NUMBER
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15

DATE MAILED:

This is a communication from the examiner in charge of your application.  
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### OFFICE ACTION SUMMARY

Responsive to communication(s) filed on September 16, 2002  
 This action is FINAL.  
 Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 D.C. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), \_\_\_\_\_, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

#### Disposition of Claims

Claim(s) 1-23 are pending in the application.  
Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 Claim(s) \_\_\_\_\_ is/are allowed.  
 Claim(s) 1-23 are rejected.  
 Claim(s) \_\_\_\_\_ is/are objected to.  
 Claim(s) \_\_\_\_\_ are subject to restriction or election requirement.

#### Application Papers

See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.  
 The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.  
 The proposed drawing correction, filed on \_\_\_\_\_ is  approved  disapproved.  
 The specification is objected to by the Examiner.  
 The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. § 119

Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).  
 All  Some\*  None of the CERTIFIED copies of the priority documents have been  
 received.  
 received in Application No. (Series Code/Serial Number) \_\_\_\_\_  
 received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e).

#### Attachment(s)

Notice of Reference Cited, PTO-892  
 Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_  
 Interview Summary, PTO-413  
 Notice of Draftsperson's Patent Drawing Review, PTO-948  
 Notice of Informal Patent Application, PTO-152

-SEE OFFICE ACTION ON THE FOLLOWING PAGES-

09/666,481

U.S. GPO: 1996-404-496/40517

## **DETAILED ACTION**

Claims 1-23 are pending in the application.

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 16, 2002 has been entered.

Rejections made in the previous Office Action which do not appear below have been overcome by Applicants' amendment to the claims (e.g. the chlorinating agent being chlorine). Therefore, arguments pertaining to these rejections will not be addressed.

In claim 13, the phrase “to chlorinating agent” should be changed to “to the chlorinating agent”.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 20 and 22 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

No support in the specification or the originally filed claims can be found for the phrase “Formula III produced contains less than 1.0% of 5-chloro-2-alkyl-4-isothiazoline-3-one”. Applicants state that support is

found on page 11, lines 5-8. However, support is found for the limitation in claim 21 but not claim 20.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. {GB 2,308,364} and Lewis et al. {U.S. Pat. 3,849,430}, each taken alone or in combination with each other.

***Determination of the scope and content of the prior art (MPEP §2141.01)***

Applicants claim a process of making a 2-alkyl-4-isothiazoline-3-one wherein an N-alkyl-3-mercaptopropionamide (or N,N'-di-alkyl-3,3'-dithiopropionamide) is reacted with chlorine in a solvent in which hydrogen chloride is insoluble or has low solubility {e.g. dichloromethane

(same as methylene chloride) and dichloroethane – see instant specification on page 5, lines 10-17 and page 9, lines 16-27}.

Kim et al. (pages 7, 8, 14, 17 and 18) teach a process of making a biocidal 2-methyl-4-isothiazoline-3-one wherein a N-methyl-3-mercaptopropionamide is reacted with chlorine in 1,2-dichloroethane (Scheme 5 on pages 12-13). Kim et al. also teach using N,N'-di-methyl-3,3'-dithiopropionamide as a starting material instead of N-methyl-3-mercaptopropionamide (page 8).

Lewis et al. (columns 1 and 2; and Example 8 in column 7) teach a process of making a biocidal 2-alkyl-4-isothiazoline-3-one wherein a N,N'-di-alkyl-3,3'-mercaptopropionamide is reacted with chlorine in an organic solvent (e.g. ethylene dichloride). Lewis et al. teach using N,N'-di-methyl-3,3'-dithiopropionamide as a starting material instead of N-methyl-3-mercaptopropionamide (column 2, line 30). Lewis et al. also teach the various molar ratios which are embraced by the instant claims (column 2, lines 47-63).

*Ascertainment of the difference between the prior art and the claims (MPEP §2141.02)*

The difference between some of the processes of the prior art and the process instantly claimed is that of generic description of the reactants and/or products.

*Finding of prima facie obviousness--rational and motivation (MPEP §2142-2413)*

The indiscriminate selection of “some” among “many” is *prima facie* obvious, *In re Lemin*, 141 USPQ 814 (1964). The motivation to make the claimed compounds derives from the expectation that structurally similar compounds would possess similar activity (e.g., a biocide).

One skilled in the art would thus be motivated to utilize the processes of the prior art to arrive at the instant claimed process with the expectation of obtaining additional beneficial compounds that would be useful as biocides. Therefore, the instant claimed process would have been suggested to one skilled in the art.

The showing in the specification on pages 12 and 13 has been considered. However, the prior art used in the “comparative example” was not identified and the closest prior art was not compared {e.g.

comparative example on page 13 uses ethyl acetate as the solvent}. Also see the above cited prior art and the solvents used therein. Therefore, the showing is not persuasive for overcoming the rejection of the instant claims under 35 U.S.C. § 103.

*Response to Arguments*

Applicants' arguments filed August 26, 2002 have been fully considered. Applicants argue that: (1) Kim et al. teach that their process produces both 2-alkyl-4-isothiazoline-3-one (I) and 5-chloro-2-methyl-4-isothiazolin-3-one (II); (2) Kim et al. teach that 5-chloro-2-methyl-4-isothiazoline-3-one (II) is formed in preference to 2-alkyl-4-isothiazoline-3-one; (3) Kim et al. teach that when chlorine is employed with ethyl acetate as a solvent where the ratio is 3:1 (which is similar to the comparative example in the instant specification) the 5-chloro-2-methyl-4-isothiazoline-3one (II) is formed in preference to the 2-alkyl-4-isothiazoline-3-one; and (4) Kim et al. fail to teach or suggest every feature of the claimed invention.

All of Applicants' arguments have been considered but have not been found persuasive. Applicants claim a process of making a 2-alkyl-4-isothiazoline-3-one wherein an N-alkyl-3-mercaptopropionamide (or N,N'-di-alkyl-3,3'-dithiopropionamide) is reacted with chlorine in a solvent in which hydrogen chloride is insoluble or has low solubility, such as dichloromethane and dichloroethane.

Kim et al. and Lewis et al. teach similar processes to the instant claimed process and each other. See above. Kim et al. teach that if the reaction temperature is below 5 °C, the reaction leads to a major portion of 2-methyl-4-isothiazolin-3-one of formula (I) and a minor portion of 5-chloro-2-methyl-4-isothiazolin-3-one of formula (II) {page 11, second full paragraph}.

Additionally, Lewis et al. teach that, "By providing an excess of halogenating agent, the isothiazolone may be halogenated at the 4- and/or 5-positions of Formula I" (column 2, lines 49-51). Therefore, one skilled in the art would utilize the ratios taught by Kim et al. (page 14, second full paragraph), and especially Lewis et al. (column 2, lines 46-

64), to arrive at the instant claimed process with the expectation of producing 2-alkyl-4-isothiazolin-3-ones, which are known to have biocidal activity (Lewis et al., column 1, lines 14-20). Note, also the product produced in Example 8 in column 7 of Lewis et al. For all the reasons given above, the instant claimed invention would have been suggested to one skilled in the art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura L. Stockton whose telephone number is (703) 308-1875. The examiner can normally be reached on Monday-Friday from 6:00 am to 2:30 pm. If the examiner is out of the Office, the examiner's supervisor, Joseph McKane, can be reached on (703) 308-4537.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-1235.

The fax phone number for the organization where this application or proceeding is assigned is (703) 308-4556.



Laura L. Stockton, Ph.D.

Patent Examiner

Art Unit 1626, Group 1620

Technology Center 1600

September 27, 2002